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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,686	01/09/2001	Charles Biggs	40001028	7230

7590 02/22/2005

Maria C. Walsh, Esquire Honeywell
Building Nichols 4
101 Columbia Road
P.O. Box 2245
Morristown, NJ 07962-2245

EXAMINER	
PRICE, CARL D	

ART UNIT	PAPER NUMBER
3749	

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/905,686	BIGGS, CHARLES	
	Examiner	Art Unit	
	CARL D. PRICE	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 11/05/2004 have been fully considered but they are not persuasive.

Applicant's request for reconsideration has been fully reviewed and considered.

Color Drawings

Applicant's indication that the appropriate petition regarding the color drawings will be filed upon indication of allowable subject matter by the examiner is acknowledged. The objection to the Drawings under 37 CFR 1.84(a)(2) is maintained and repeated herein below.

With regard to whether or not Grieves appearance presents patterns selected from the group consisting of a fingerprint pattern, a sunburst pattern, a marble pattern, a tortoise pattern, a spotted pattern and combinations of two or more of these. Applicant has provided no factual support or evidence that an article produced according to the disclosure of Grieves, and /or according to Grieves as modified by the teachings of Tao '077 and/or Tao '735, Luken, Jr. et al '496, Priest or Jensen and French does not, or would not, presents patterns selected from the group consisting of a fingerprint pattern, a sunburst pattern, a marble pattern, a tortoise pattern, a spotted pattern and combinations of two or more of these.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that Priest and Jensen are each from a nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the disclosures or Priest and Jensen are reasonably pertinent to the particular problem with which the applicant is concerned, that is Priest and Jensen teach a person having ordinary skill in the art that insect or beeswax are known substitutes, or equivalent materials, for the carnauba wax in Grieve. Priest or Jensen, also teach the person having ordinary skill in the art that insect wax, or beeswax, is a known to substitute for the carnauba wax in Grieves when addressing he problem of phase nucleation, or when addressing the a phase separation.

Applicant again states that the invention as set forth in claims 1-16 defines an article "containing a unique combination of components in amounts effective to provide a specific and highly desirable appearance to the article". Applicant makes reference to claim 1, for example, and that the article claimed is made from "80 parts by weight of less than about 99 parts by weight of vegetable-derived compounds and from about 1 part to about 20 parts by weight of

insect wax providing said surface layer with an appearances described in the claims" (i.e. – "selected from the group consisting of a fingerprint pattern, a sunburst pattern, a marble pattern, a tortoise pattern, a spotted pattern and combinations of two or more of these.").

Claim 1 is reproduced herein below.

(Claim 1)

> A shaped article of manufacture comprising at least a surface layer formed of a composition comprising from about 80 parts by weight to less than about 99 parts by weight of vegetable-derived compound(s) and from about 1 part to about 20 parts by weight of insect wax, the combination of said vegetable wax and said insect wax together providing said surface layer with an appearance selected from the group consisting of a fingerprint pattern, a sunburst pattern, a marble pattern, a tortoise pattern, a spotted pattern and combinations of two or more of these.

Applicant also states that certain claims define a method of fabricating a molded article that includes providing a composition comprising vegetable derived components and insect wax derived components and molding the composition into the desired shape (i.e. –a candle), recited in claims 17-22. Applicant highlights the importance of the inclusion of *"insect wax in an amount effective to cause sufficient shrinkage of the molded article to improve the release properties of the composition upon removal from the mold"*. In this regard applicant makes reference to claim 20, requiring *"at least 3 weight percent bees wax"*.

Applicant also remarks that *"certain combinations of components do not produce the desired effect"* of producing the *"unique and highly decorative effects or the advantageous molding characteristics"* of the claimed invention. And, applicant indicates that the advantageous aesthetic features of the present invention are not achieved with compositions that

eliminate the vegetable-based compounds and utilize instead petroleum-derived compounds. Applicant re-states that *"Applicant has found that the desirable aesthetic effect is generally achieved at insect wax concentrations below about 1% or at about 20% or above"*.

(Prior Art Previously Cited)

Grieves

Grieves discloses both a shaped article (i.e.- an ornamented candle) and method of forming the article which results in, after cooling a molten composition layer (i.e.- applied by dipping a preformed paraffin candle). The composition being made up of a blend of wax (e.g. – 30-60 % of stearic acid and (spermaceti or Japan wax) and /or 1-5% carnauba). The effect of applying the Grieves mixed wax composition to the candle article is to form visible decorative and ornamental crystalline deposits on the candle. Albeit Grieves chooses to describe the decorative appearance of the candle as "white or noticeably lighter" stearic acid crystal deposits, or efflorescence, appearing in the candle coating taking the form of "irregular star shaped deposits or striae", "irregular stars" (7a) and "striae" (7b), the candle article and method for producing the candle of Grieves are not unlike that disclosed and claimed by applicant: a "shaped article of manufacture" having "at least a surface layer formed of a composition" wherein the surface layer is made up of "from about 80 parts by weight to less than about 99 parts by weight of vegetable-derived compound(s) and from about 1 part to about 20 parts by weight of insect wax, the combination of the vegetable wax and the insect wax together providing the surface layer with an appearance selected from the group consisting of a fingerprint pattern, a sunburst pattern, a marble pattern, a tortoise pattern, a spotted pattern and combinations of two or more of these.

French

French discloses, in a manner similar to Grieves, a candle article and method of fabrication including a blend of organic components which, when solidified onto the surface of a

candle from a molten state, result in visible crystalline formations (i.e. – feather-like, irregular veins, fibers, radial foliae, clusters of metallic-like needles, clusters of fan-like crystalline metal).

More specifically, the French crystal forming composition includes:

> 1) **a crystallizable organic material** (e.g. – naphthalene, anthracene, alkyl derivatives of anthracene, benzoic acid, **"similar crystallizible organic compounds"**, **"equivalent homologues")**
>
> 2) a suitable solvent (e.g. – benzol, xylo, benzo-xyol, toluene, "and like, homologues")
>
> 3) an ester gum carrier.

Applicant's attention is particularly directed to page 2, lines 60-100 and 134-145 of French where it is noted that the formation of the feather-like dispersions can be increased by increasing the amount of the lesser quantity component "gum" portion used in the crystal growing solution.

French discloses the following:

> ... The formation of these **feather- like** dispersions can be **increased by increasing the amount of gum in the crystal growing solution.** When the amount of gum used is greater than the amount set forth in Table II, the feather- like dispersion of metallic powder will increase. ...
>
> ... The explanation for the formation **of these irregular veins** is thought to result from the **tendency of the growing crystals of the crystallizable substances such as naphthalene to push the metallic particles ahead of the growing crystal.** ...
>
> ... As the crystals grow the metallic particles remain for the most part with the crystallizable material the crystallizable material in stead of being pushed ahead of the growing crystals. The crystalline fibers or radial foliae are shown at 15 in Fig. 3. However, **when two clusters of crystals collide** a well-defined mark results, **as shown at 16 in Fig. 3.** The increase in the amount of ester gum used in the crystal growing solution apparently accounts for the tendency of the metallic particles to remain in associated with the crystallizable substances. - - .

Again, it is noted that decorative appearance of the candle made by the French article and method of producing the article are is not unlike that disclosed and claimed by applicant.

Lewis

Lewis also discloses, in a manner similar to Grieves and French, a candle article and method of fabrication including a blend of organic components which, when solidified onto the surface of a candle from a molten state, result in visible crystalline formations

Applicant's attention is particularly directed to page 1, lines 62-78 Lewis (of record) which includes the following:

> ... **It has further been found that while the stearic acid alone will give a rather even "frosted" coating, if a small amount of paraffin is added to the stearic acid bath** - for example a pint of paraffin to five gallons of stearic acid - **the frosted coating will take somewhat the form of broken lines or streaks of a pleasing nature. It will of course be understood** that the candle body itself as well as the paraffin and stearic acid baths may be colored, either correspondingly or differently so that varied effects may be obtained, **and that other waxes, organic acids or substances that will become molten at relatively low temperatures and will quickly solidify and crystallize may be employed.**

Again, it is noted that decorative appearance of the candle made by the Lewis article and method for producing he article are not unlike the article produced that disclosed and claimed by applicant.

In summary, Grieves, French and Lewis therefore disclose a shaped article of manufacture comprising at least a surface layer formed of a composition forming a decorative, ornamental and aesthetically pleasing patterned material.

Cazada

Calzada (U.S. Patent No.- 6063144; of record) teaches (see column 3, line 1-26) that it is known to form "non-paraffin" candle articles from vegetable-derived composition including a blend of vegetable-derived "stearic acid" and a vegetable-derived wax (e.g. –carnauba, candelilla, etc.), as well as varying amounts of vegetable oils (see column, lines 19-26) and

oxidation inhibitors (see column 3, lines 48-65). Calzada defines "stearic acid" as any of the commercial grades (see column 2, line 37-67).

Calzada discloses:

> (12) In accordance with this invention, a substantially non-paraffin candle comprises a wick and a substantially non-paraffin combustible composition consisting essentially of at least **30 parts** by weight of **stearic acid**, at least **5 parts by weight of vegetable-derived wax** having a melting point of at least 50.degree. C., 0-50 parts by weight of at least one vegetable oil, 0 to 10 parts by weight of at least one fragrance and 0 to 1 part by weight of at least one oxidation inhibitor.

Luken,Jr. et al '496

Luken, Jr. et al '496 a "stearic acid" candle composition known to form **"dendrite" or "branched shaped", "tree-like figures" (i.e. – crystals).** Luken, Jr. et al further indicated that the occurrence of these formations is minimized "primarily by slowing the rate of cooling" during manufacture. The blended composition of Luken, Jr. et al being made from "commercial sources".

Luken, Jr. et al '496 discloses :

> (7) While the addition of stearic acid to the paraffin imparts a desirable opacity and surface sheen to the candles, dendrites **(branched, tree-like figures)** can develop, particularly with dipped candles. In colored candles, both dipped and molded, an apparent or real lack of uniformity of distribution of the coloring agent is also evident. Dark spots, i.e., blotches, are present in the candle. The unevenness of coloration is exacerbated by the enhanced opacity of the candle composition. **Dendrite formation** and unevenness of color can be minimized and in some cases virtually completely eliminated by careful control of processing parameters, **primarily by slowing the rate of cooling**, however, in commercial candlemaking operations where output is a primary concern this is generally not considered to be economically feasible. ...
>
> (16) Fatty acids used are C.sub.16 and C.sub.18 straight-chain saturated fatty acids, i.e., palmitic acid and stearic acid, and mixtures thereof. Since virtually all **commercially available palmitic acid and stearic acid is obtained from natural fats and oils,** the fatty acid is generally a mixture of palmitic acid and stearic acid wherein said acids are present in a weight ratio from about 4:1 to about 1:4. Especially useful fatty acid mixtures have weight ratios of stearic acid to palmitic acid of 2:1 to 1:2. Other fatty acids having from about 14 to 24 carbon atoms can also be present in the mixture in minor amounts. The fatty acid or fatty acid mixture will generally have a titer (AOCS Method Tr 1a-64 T) in the range 53.degree. C. to 5.degree. C. and, more preferably, from 54.degree. C. to 60.degree. C. Useful fatty acids for the wax compositions of this invention may also be **synthetically produced.**

In addition, Luken, Jr. et al '496 also teaches the use of mold release agents, in amounts of 0.1 percent to 10 percent, by weight, are included in the candle composition. Such waxes can include, for example, **carnauba wax** and **aliphatic amide** waxes.

Luken, Jr. et al '496 disclose:

> (27) Small amounts of other additives including other waxes, **mold release agents,** coloring agents, and fragrance materials can be **included in the fuel composition to obtain useful candles**. The addition of such agents is particularly advantageous if the wax compositions of this invention comprise the sole fuel component for the candle. If other waxes are added, they can be present at levels from **about 0.1 percent to 10 percent, by weight,** of the total wax composition. **Most generally, these supplemental waxes will be used in an amount from about 0.5 to about 5 percent.** Such waxes can include, for example, microcrystalline waxes, montan wax, **carnauba wax, castor wax, Fisher-Tropsch waxes, and aliphatic amide waxes.**

Luken, Jr. et al '496 further acknowledges that candles made from the composition can be prepared by dipping, molding and rolling.

Luken, Jr. et al '496 disclose:

> (30) The wax compositions of this invention can be used for the preparation of **dipped, molded, or rolled candles**. They are particularly advantageous, however, for use in dipping operations.

Tao '007

Tao '007 also acknowledges that the vegetable-derived compounds used in candle manufacture1) include both acids (i.e. – "fatty acid") and esters (i.e. – "fatty acid component" and 2) form "visible crystal formations", if not cooled properly.

> ... The triglycerides and free fatty acids are **obtained preferably from plant sources**, including soybean, cottonseed, corn, sunflower, canola and **palm oils.** ...
> ...Furthermore, fatty acids may be obtained by hydrolysis of natural triglycerides (e.g., alkaline hydrolysis followed by purification methods known in the art, including distillation and steam stripping) or by
> synthesis from petrochemical fatty alcohols. The free fatty acids and triglycerides may further be obtained from **commercial sources,** including Cargill, Archer Daniels Midlands and Central Soya.

... As known in the art, **triglycerides are fatty acid esters** of glycerol. As used herein, the term "free fatty acid" will refer to a fatty acid that is not covalently bound through an ester linkage to glycerol. Additionally, as used herein, the term **"fatty acid component"** will be used to describe a fatty acid that is covalently bound through an **ester linkage** to glycerol. ...

With regard to physical properties of materials Tao '007 discloses:

... (32) The **crystallization/solidification behavior of the vegetable lipid-based composition** of the present invention is significantly different than the behavior of petrochemical products. It is therefore necessary to employ relatively **slow process cooling rates** in order to obtain smooth **candles** with no **visible crystal formation.** ...

Tao '007 also acknowledges the candle composition being made of up to 100% vegetable-derived material, where the primary component of the material is stearic acid.

... Preferred free fatty acids are the saturated fatty acids such as **palmitic acid** and include saturated fatty
acids of longer carbon chain length, such as **arachidic acid and behenic acid**. **Stearic acid is further preferred.** ...

... The **fatty acid/triglyceride** mixture can include about **1% by weight to about 99% by weight of the free fatty acid** and **about 1% by weight to about 99% by weight of the triglyceride.** The fatty acid components of the triglyceride and the maximum respective percentages by weight that they may be found in the triglyceride may be those detailed in Table 1. The free fatty acids present in the fatty acid/triglyceride mixture can be, for example, palmitic, **stearic, behenic, arachidic, oleic or linoleic acid or any combination thereof.**

... EXAMPLE 1
A **100% triglyceride** lipid candle was prepared in accordance with the described protocol. The **fatty acid** components of the triglyceride were 13.7% palmitic acid, **74.2% stearic acid** and 12.1% oleic acid. ...

See also, for example, the following claims Tao '735 (see claims 40 and 42, for example):

40. The composition of claim 36, wherein said **free fatty acid** includes **stearic acid.**

42. The composition of claim 37, wherein said **fatty acid component includes stearic acid.**

Tao '735

Tao '735 (newly cited) also acknowledges the candle composition being made of up to 100% vegetable-derived material, where the primary component of the material is stearic acid

See also, for example, the following claims Tao '735 (see claims 21, 26 and 27, for example):

> 21. A **candle** comprising a wick and a combustible candle composition comprising **51% to 100% by weight of a plant derived composition,** the plant derived composition including **a mixture** of **free fatty acid** and **fatty acid esters** of glycerol, the mixture including 1% to 99% by weight of free fatty acid and 1% to 99% by weight of fatty acid esters of glycerol, the fatty acid esters of glycerol consisting essentially of fatty acid components having up to 3 double bonds, the combustible candle composition being solid at a temperature up to 55.degree. C.
>
> 26. The candle of claim 21, wherein the composition comprises **at least 83% by weight** of the mixture of free fatty acid and fatty acid esters of glycerol.
>
> 27. The candle of claim 21, wherein the **mixture includes 1% to 99% by weight of free fatty acid and 1% to 99% by weight of triglycerides,** the triglycerides being derived from soybean.

Level of Ordinary Skill

The teachings presented in the disclosures of each Grieves, French and Lewis alone, and/or the overall combination of teachings of these prior art references together, illustrate the established level of ordinary skill in the art at the time of applicant's invention. A person having ordinary skill in the decorative candle/article composition field of endeavor being aware of Grieves and/or French and/or Lewis would have understood various techniques, and interactive properties of candle materials, necessary in forming various crystalline, feather-like, crystalline fibers, foliae and frosted appearances of formed candle articles. More specifically, the person having ordinary skill in the art at the time of the invention would have understood and recognized, irrespective of the of the source or manufacturing origin of the material, that "stearic acid" (e.g. – Grieves and Lewis) contains properties (i.e.- melting point temperature, solubility, texture, etc.) suitable as a material intended to produce decorative crystalline features, particularly for the manufacture of an ornamental candle article. Similarly, from the teachings of French, the person ordinary skill in the art would have understood that materials other than stearic acid (i.e.- naphthalene) are used as the crystal producing component of in decorative candle compositions. Furthermore, the teachings of French clearly and explicitly establish an understanding in the art that the use of "homologues" for any component portion of a decorative

crystal forming candle composition would predicable produce similar decorative characteristics to those of the blended composition disclosed. Thus, a person having ordinary skill in the art of candle fabrication, understanding design parameters and constraints particular to fabricating candles (i.e. – melting, solidifying and freezing temperature, hardness requirements, etc.), would have known to use available homologues for the components materials of any one of the Grieves, French and Lewis candle compositions. Furthermore, in view of the prior art as a whole, Grieves' and Lewis's use of "stearic acid", and the "naphthalene" used by French, would have taught the person having ordinary skill in the art that it would have been obvious to use homologues of the crystallizable material portion of decorative candle blends. Thus, at the time of the invention and in view of the teachings of the prior art as a whole a person having ordinary skill in the art of decorative candle manufacturing would have not been constrained to use the specific materials and/or manufacturing techniques of Grieves, French or Lewis when performing the invention(s) taught thereby.

A Summary of Applicant's disclosed composition components

A summary of applicant's disclosed composition components follows:

In applicant's disclosure (see page 3, line 18), the term **"vegetable-derived compound(s)"** is defined as:

- "any single compound or combination of compounds which are of the type commonly derived from vegetable or fruit sources", and
- "more preferably are selected from the group consisting essentially of vegetable waxe vegetable acids and combinations of acids and waxes of the type derived from vegetable and fruit sources".

And, for embodiments which incorporate **vegetable acids** the term **"stearic acid"** (see page 4, line 1) includes:

- **"any of the commercial grades of stearic acid"**
- while noting that academic authorities and textbooks treat **"stearic acid"** as a synonym for the pure chemical compound **octadecanoic acid ($C_{17}H_{35}COOH$)**, commercial practice, which is the intended meaning herein, is broader and uses the same term for mixtures comprising major amounts of one or more of both :
    - **octadecanoic acid** together with minor amounts of **lower and higher homologs,**

- **monounsaturated acids 9-Octadecanoic acid (oleic acid, $C_{17}H_{33}COOH$)**
- **9-Hexadecanoic acid (palmitoleic acid, $C_{15}H_{29}COOH$)**

Particularly preferred compounds disclosed by the applicant are **palm-derived waxes** including mixtures and combinations of:

- candelilla waxes
- cork fiber waxes
- hemp fiber waxes
- sugar cane waxes
- bayberry waxes
- Japan waxes
- bamboo leaf waxes
- rice waxes
- esparto wax
- ouricury
- caranda'
- raffia.

Applicant further indicates that **palm derived waxes** generally contain high concentrations, for example:

- about **80% to about 90%** of **alkyl esters of higher fatty acids** which include **combinations of two or more** of **: esters** of **palmitic acids, stearic and oleic acids**.

- In general, the **vegetable wax** of the present invention preferably is:
  - in major proportion of **palmitic ester** waxes
  - at least about **70 %** by weight of **esters** derived from **palmitic, stearic or oleic acids**
  - at least about **80 %** by weight of **esters** derived from **palmitic, stearic or oleic acids** being even more preferred
  - a major proportion, on a relative weight basis, of **stearic acid** and minor proportion of **esters of stearic acid**
  - about 70 to about 90 parts by weight of **stearic acid** and from about 10 pms by weight to about 30 pms by weight of **esters of stearic acid**.

Preferably the composition consists essentially of **lower alkyl (C_1 - C_4) esters:**

- **methyl esters of stearic acid** including:
  - **methyl ester of hexadecanoic acid**
  - **methyl ester of octadecanoic acid**
  - **combination** of **methyl ester of hexadecanoic acid** and **methyl ester of odadecanoic acid** (sold by Procter & Gamble Chemicals under the trade designation CD-1618H).

Applicant's disclosed "Insect wax" composition component:

With regard to the term **"insect wax"**, it is noted applicant's specification defines this term as referring "not only to waxes produced by naturally occurring insects, but also any waxes produced by genetically altered insects and to waxes produced **synthetically as insect wax substitutes.** Synthetic substitutes for insect wax are disclosed in U.S. Patent Nos. **4,500,359, 4,292,008** and **4,151,00,** each of which is incorporated herein by reference" and "The preferred insect wax in accordance with the present invention is beeswax. In general, based on various publications, **beeswax contains** of 10.5 - 14% hydrocarbons, 71 - 72% **alkyl esters of monocarboxylic acids,** 0.6 - 0.8 % choloesteryl esters, 12% - 14.5 %

free acids, 1 - 1.5 % free alcohols, and other ingredients, including coloring matter, lactone, moisture and mineral impurities.". Applicant's disclosure further states that "In general, the simple **esters of beeswax** are comprised in major proportion of **palmitate** compounds, including **myricyl palmitate**". Therefore, the term "insect wax" as defined by applicant would include waxes such as, for example, Chinese insect wax, which is also known in the art as "insect wax", as well as any waxes produced by genetically altered insects and to waxes produced synthetically as insect wax substitutes.

Insect Wax

Insect Wax according to applicant's disclosure includes:

- "**insect wax**"
- **beeswax**
- **synthetic** substitutes for insect wax (e.g.- U.S. Patent Nos. **4,500,359, 4,292,008** and **4,151,00)**
- **esters of beeswax (e.g. - palmitate** compounds, including **myricyl palmitate)**.

Rejection of the claims base on teachings found in the prior art follows.

Objection to Drawings

The drawings are objected to because of the reasons set forth on the attached PTO FORM. Correction is required.

Color photographs and color drawings are acceptable only for examination purposes. In order fort the color photographs to be accepted a petition filed under 37 CFR 1.84(a)(2) must be granted permitting their use as acceptable drawings. In the event that applicant wishes to use the drawings currently on file as acceptable drawings, a petition must be filed for acceptance of the color photographs or color drawings as acceptable drawings. Any such petition must be accompanied by the appropriate fee set forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and an amendment to the first paragraph of the brief description of the drawings section of the specification which states:

"The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the U.S. Patent and Trademark Office upon request and payment of the necessary fee."

Color photographs will be accepted if the conditions for accepting color drawings have been satisfied. See 37 CFR 1.84.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-21: rejected under 35 U.S.C. 103(a)

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Greives** in view of **Tao '077** and/or **Tao '735** (US006284007); of record, US0006497735)(newly cited), **Luken, Jr. et al '496** (US004714496)(of record) and in view of **Priest** (US0003355295) or **Jensen** (US003265629; newly cited) and **French** (U.S. Patent No.- 1964200).

The discussion of the prior art references of Grieves, Luken, Jr. et al '496, Tao '007 and Tao '735 appearing herein above are incorporated in the following rejection of the claims.

Grieves discloses both a shaped article (i.e.- an ornamented candle) and method of forming the article which results in, after cooling a molten composition layer (i.e.- applied by dipping a preformed candle - for example, made of paraffin) made up of a blend of wax (e.g. – 30-60 % of stearic acid and spermaceti or Japan wax (i.e. – "a non-mineral wax having a melting point not higher than that of Japan wax, such as spermaceti or Japan wax"). The composition of Grieves also includes 1-5% carnauba wax. Grieves does not specify the origin of manufacture of the stearic acid component of the candle composition. It is noted however that the "Japan wax" of Grieves is a vegetable-derived material. Indeed, it is also noted

applicant's own disclosure indicates that Japan wax is a vegetable-derived material (see page 4, lines 29-31). Grieves therefore includes 30-60% stearic acid of an unspecified origin, although not specifically stated, 30-60% vegetable-derived Japan wax or a non-mineral wax having a melting point not higher than that of Japan wax, and 1-5% carnauba wax. Grieves discloses (see page 1, lines 43-49) that upon cooling the stearic acid containing composition produces a marked crystalline deposit or efflorescence appears in the coating on the candle the crystals. The crystals take the form on irregular star shaped deposits or striae. Crystals of stearic acid form, as "irregular stars" (7a) and "striae" (7b). The crystalline deposits are "white or noticeably lighter" in color than the remaining portions of the dip coating. Therefore, candle composition of Grieves provides a surface layer on a candle article with an appearance selected from the group consisting of a finger print pattern, sunburst pattern, a tortoise pattern and a spotted pattern. While the candle composition of Grieves, does include stearic acid as a major component, it differs from that claimed by applicant in that the origin of the stearic acid is not specified. Additionally, while Grieves also includes carnauba wax, as a lesser composition component, the amount (1-5 %) of this additive is within applicant's range of 1-20% specified for the "insect wax". Note the discussion of Grieves appearing herein above.

Tao '007 and Tao '735 teach, from the same candle composition field of endeavor as Grieves, that it is known to manufacture candles from a composition comprising between 80-90% of a vegetable-derived material where the composition comprises stearic acid and esters of stearic acid. Tao '007 acknowledges that necessary to employ relatively slow process cooling rates in order to obtain smooth candles with no visible crystal formation of vegetable lipid-based composition of different than the behavior of petrochemical products. See the discussion of Tao '007 and Tao '735 herein above.

Luken, Jr. et al '496 (U.S. Patent No.- 4714496) teaches, from the same candle composition field of endeavor as Grieves, that it is known to form candle compositions from synthetic waxes including stearic acid which are known to form **"dendrite" or "branched shaped", "tree-like figures"**; and to incorporate therein lesser amounts of mold release agents consisting of up to **10 % of carnauba wax, or aliphatic amide waxes**. In addition, Luken, Jr. et

al '496 also acknowledges that candles made from the composition can be prepared by dipping, molding and rolling. See also the discussion of Luken, Jr. et al '496 appearing herein above.

Priest teaches (see column 4, lines 42-58), from the same wax composition field of endeavor as Grieves, using wax material additives to provide nucleation in a material that separates as a discontinuous phase. In this regard Priest teaches **insect wax, beeswax, carnauba wax, spermaceti wax, Chinese wax,** and waxes which are esters derived from long chain monohydric alcohols and long chain acids, high molecular weight hydrocarbons, fatty acids, alcohols and ketones may also be employed. Priest further teaches, the more useful concentration of wax is from about .5 to 5%, based on the weight of the polymeric binder, concentrations of about 3.7% wax give particularly good- results.

Jensen teaches, from the same wax composition field of endeavor as Grieves, the use of materials, in a **phase separation composition**, the following materials as functional equivalents:

- vegetable waxes such as, for example, **carnauba wax, japan wax**, flax wax;
- an animal wax such as, for example, spermaceti; or
- an **insect wax** such as **beeswax, Chinese wax** or shellac wax;
- as well as an ester of a fatty acid having from 12 to 31 carbon atoms and a fatty alcohol having from 12 to 31 carbon atoms, the ester having from a carbon atom content of from 24 to 62, or a mixture thereof. Exemplary are myricyl palmitate, cetyl palmitate, myricyl cerotate, cetyl myristate, ceryl palmitate, ceryl certate, myricyl melissate, stearyl palm@itate, stearyl myristate, lauryl laurate.

French teaches, from the same wax composition field of endeavor as Grieves, that formation of feather-like dispersions can be increased by increasing the amount of a lesser quantity component "gum" portion used in a crystal growing solution.

In regard to claims 1-22, for the purpose of providing a suitable crystal growing material for the solid self-sustaining candle body in Grieves, it would have been obvious for a person having ordinary skill in the art to use a vegetable-derived stearic acid and stearic acid ester material, having a melting point lower than that of Japanese wax, for either the stearic acid component alone, or both the stearic acid and Japan wax components, in view of the teaching of Tao '007 and/or Tao '735. Additionally, in view of the teaching of Luken, Jr. et al '496, and particularly with regard to claims 17-22, it would have been obvious to a person having ordinary skill in the art that the carnauba wax component of the Grieves candle composition would act as mold release agent to aide in releasing an article formed by the composition in a mold. Furthermore, in regard to all of claims 1-22, in view of the teachings Priest and Jensen, it would have been obvious to a person having ordinary skill in the art to that insect wax, or beeswax, are the structural and functional equivalents material to the carnauba wax of Grieves. It therefore would have been obvious to a person having ordinary skill in the art to substitute, as an equivalent material, either insect or beeswax for the carnauba wax in Grieve. Also, in view of the teachings of either Priest or Jensen, it would have been obvious to a person having ordinary skill in the art to substitute insect, or beeswax, for the carnauba wax in Grieves, for the purpose of enhancing phase nucleation, in the manner taught by Priest, or for the purpose of providing a phase separation mode, in view of the teaching of Jensen. And, in regard to claims 1-22, the various shapes and forms of the crystallized patterns disclosed by Grieves are deemed the structural and functional equivalent of applicant's claimed surface layer with an appearance selected from the group consisting of fingerprint pattern, sunburst pattern, marble pattern, tortoise pattern, spotted patterns. Furthermore, in regard to claims 1-22, it would been obvious to

a person having ordinary skill in the art that the characteristic of the crystalline pattern produced would predictably depend on the amount of the lesser quantity component.

Conclusion

See the attached PTO FORM 982 for prior art made of record and not relied upon which is considered pertinent to applicant's disclosure.

In particular, applicant's attention is directed to Beardmore (U.S. Patent No.- 4118203; of record) discloses:

> ... The present invention provides for a candle wax composition having improved **mold release** characteristics. **The composition comprises candle wax and from about 0.01 to about 10 percent by weight of a** mold release additive selected from the **group consisting of dimethyl, diethyl and methyl-ethyl esters of aliphatic dicarboxylic acids** having two to four carbon atoms and of **phthalic acid** and mixtures thereof. The candle wax composition possesses improved mold release properties over traditional candle wax composition. ...
>
> ... Brief Summary Text - BSTX (15):
> The **mold release additive will comprise from about 0.01 to about 10, preferably from about 0.05 to about 5 and more preferably from about 0.1 to about 2 percent by weight of the total composition,** and will **comprise lower alkyl esters** of aliphatic dicarboxylic acids and phthalic acids. ... The **phthalic acids** are the ortho, meta, or para isomers or mixtures thereof of the benzenedicarboxylic acids. **The mold release additive comprise diesters of the dicarboxylic acids, diesters of the phthalic acids** of mixtures thereof. **The esters may be dimethyl, diethyl or mixed, i.e., methyl-ethyl, esters**. ...

In particular, applicant's attention is directed to US004944937 (McCall) which discloses:

> "Solidifying agents useful in the gel sticks of this invention are, in general, surface-active compounds which form networks immobilizing or solidifying the liquid base materials into a gel. Such solidifying agents include: soaps, such as the sodium and potassium salts of higher fatty acids, i.e., acids having from 12 to 22 carbon atoms; amides of higher fatty acids; higher fatty acid amides of alkylolamines; dibenzaldehyde-monosorbitol acetals; alkali metal and alkaline earth metal salts of the acetates, propionates and lactates; waxes, such as candelilla and **carnauba waxes**; and mixtures thereof.

In particular, applicant's attention is directed to US00US005403392A (Craig) which discloses:

> 17) **Hydrophobizing agents** useful in the dispersions of the present invention are those materials which are non-migratory upon application and which provide some lasting degree of water repellency under ambient conditions, subsequent to application to the surface or available interfaces of a given

material. This excludes hydrophobic materials, such as volatile organic compounds, non-reactive low viscosity materials, or solvents for instance, which would not be expected to be substantive to the substrate, either due to volatility or diffusivity, thus preventing the imparting of any lasting water repellency. Suitable examples of hydrophobizing agents include triglycerides, especially normally solid or semi-solid triglycerides such as those derived from **animal and plant sources** including triglycerides derived from the following fatty acids, lauric, myristic, palmitic, stearic, oleic, linoleic, linolenic, alpha-eleostearic, ricinoleic, **behenic**, erucic, as well as triglyceride derivatives including hydrogenated triglycerides or saturated triglycerides such as trilaurin, tripalmitin, trimyristin, tristearin, and castor wax, additional examples of which are contained in Encyclopedia of Chemical Technology, Volume 9, (1980), "Fats and Fatty Oils", by T. Applegate, pages 795 through 831 the contents of which is incorporated herein by reference; **waxes,** i.e. materials which are plastic solids at room temperature, but yield low viscosity fluids upon melting, and which may be crystalline or amorphous, comprising such materials as **insect** and animal waxes including beeswax and spermaceti, vegetable waxes including candelilla wax, **carnauba wax**, castor wax, and bayberry wax, mineral waxes including montan wax and petroleum waxes, **synthetic waxes such as polyethylene waxes** and carboxylated polyethylene waxes, and other waxy materials such as fatty acids, fatty acid salts, fatty alcohols, ...

THIS ACTION IS MADE FINAL

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

USPTO CUSTOMER CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARL D. PRICE whose telephone number is 703-308-1953. The examiner can normally be reached on Monday through Friday between 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 703-308-1935. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CARL D. PRICE
Primary Examiner
Art Unit 3749

Cp